

Waterfall Model

- The result of each phase is one or more documents that are approved.
- The following phase should not start until the previous phase has finished.
- In practice, these stages overlap and feed information to each other.

1. Requirements analysis and definition: establish the services, constraints, and goals.

- Services and goals
 - Course scheduling system for university students.
 - 3 types of users - students, instructors, administrators.
 - Stores schedules for multiple semesters.
 - Stores scheduling preferences.
- Constraints
 - System cannot handle traffic when a large number of students are attempting to register simultaneously.
 - Instructors cannot override students to register for classes, only admins have that authority.

2. System software and design: establish the overall system architecture and define the fundamental software abstractions and relationships.

- Three layers
 1. User interface - website used by students to register for classes.
 2. Backend layer - software/code that interacts with the frontend (user interface) and saves data in the database.
 3. Database layer - stores classes registered by students and shows number of credits taken.

3. Implementation and unit testing: write the code and test the components.

- Three layers
 1. User interface - website has buttons, drop down menu that helps users in viewing classes and registering classes.
 2. Backend layer - object oriented design that has a user class which is used in creating student, instructor, and admin classes.
 3. Database layer - table that records course details, and classes registered by students.

4. Integration and system testing: integrate the components into a system and test the system.

- Test if the user interface successfully connects with the database through the backend. Ex. when a user clicks a button to register for a class, the backend layer should interact with the database layer and save the class registered by the student.

5. Operation and maintenance: install and use, fix bugs, and update.

- Test periodically and update code in case there are any bugs while testing.